synApps Downunder

Use of synApps at the Australian Synchrotron

Wayne Lewis
Control Systems Group
Australian Synchrotron

Overview of synApps use

- Beamlines
  - X-ray absorption spectroscopy
  - Powder diffraction
  - Soft X-ray spectroscopy (possibly)
  - Infrared spectroscopy
  - Microspectroscopy (planned)
  - SAXS/WAXS (planned)
- Modules
  - motor
  - std
  - mca
  - autosave
  - Industry Pack IO
  - dxp
  - sscan
  - optics
  - quadEM

Benefits of synApps

- Reduced development time
  - Common record types already developed
  - Existing drivers for wide range of hardware
  - Ability to put together a functioning experiment in a very short space of time
  - Interface screens already developed
- Consistency
  - Maintain consistency with EPICS community
  - Access to support from developers
  - Retain ability to utilise future developments
  - Able to use existing developments that assume presence of synApps records
  - Interactions between records have been considered and allowed for
  - Creates the possibility of contributing back to the EPICS community

Motor record

- Advantages
  - Existing drivers for a range of motion controllers
  - Simple to get up and running
  - Offers consistent interface to different controllers
  - Easy to integrate with scan record
- Issues
  - Does not support synchronised motion
  - Undocumented behaviours
  - Not always a good fit to some modern controllers
  - Not always being used for modern controllers

Scaler record

- Advantages
  - Good generic interface to scaling functionality
  - Existing drivers for some cards
  - New drivers simple to develop
  - Easy to integrate with scan record
  - Built-in functions such as autoscan

MCA record

- Limited experience to date, but expect significant use

Industry Pack IO

- Advantages
  - Pre-existing drivers
  - Access to break-out boards such as those at APS
- Issues
  - Interrupt handling not smoothly transferred to PCI/VME bridge

Scan record

- Advantages
  - Simple method of creating an “experiment”
  - Existing higher level applications and user interfaces available
  - Flexible configuration

Table record

- Advantages
  - Simplifies implementation of complex geometry
- Issues
  - Assumes presence of motor record
  - Significant work in adding additional geometry

Optics module

- Advantages
  - Useful starting point for a range of optical devices

Summary

- Wide range of records directly and immediately useful in beamline control and data acquisition
- Extensive range of supported hardware
- Good templates for developing new hardware support
- Allows consistency with developments at other sites
- Allows access to support from existing sites
- Substantial development time and resource saving
- Gives a good “short-list” of hardware to choose from
- Ability to integrate with PCI/VME bridge

The End

Questions?